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ANURADHA BHAT
Centre for Ecological Sciences,
Indian Institute of Science,
Bangalore 560012, Karnataka, India

REFERENCES

- DAY, F. (1889): The Fauna of British India, including Ceylon and Burma. Fishes 1: xiii+548 pp.
- JAYARAM, K.C. (1952): Taxonomic notes on the fish *Pseudobagrus chryseus* Day, 1865. *Ann. Mag. Nat. Hist.* 12(5): 980-983.
- JAYARAM, K.C. (1955): The Palearctic element in the fish fauna of peninsular India. *Bull. Natl. Inst. Sci. India* 7: 260-265.
- JAYARAM, K.C. (1981): Freshwater fishes of India, Pakistan, Bangladesh, Burma, and Sri Lanka. *Hand Book of ZSI, Calcutta*. No.2, X11 + 475 pp.

25. RANGE EXTENSION OF *MYSTUS BLEEKERI* (DAY) TO THE FRESH WATERS OF TAMIL NADU AND NOTES ON ITS CONGENERS IN TAMIL NADU AND SRI LANKA

Day (1875-78) named the specimens from River Hooghly, Calcutta *Macrones bleekeri* (now *Mystus bleekeri*) which Bleeker in 1853 had identified as belonging to the species *keletius* (Valenciennes, 1839: type locality - Pondicherry). Though both the species bear lateral stripes on the body, they differ in several characters. In *bleekeri*, the occipital process is twice as long as broad and reaches the basal bone of dorsal; adipose dorsal base is long, commencing just behind last dorsal ray, its base being 2.4 times the rayed dorsal; maxillary barbels are long, reaching the anal fin, whereas in the latter, the occipital process is narrow, being 3 times as long as broad at the base and does not reach the basal bone of dorsal; adipose dorsal base is shorter being 1.1 times the rayed dorsal base, with wide interdorsal space; maxillary barbels are shorter, reaching only the middle of pelvic fin (Day, op. cit.; Misra 1976). *M. bleekeri* (Fig. 1) also differs from the widely distributed striped catfish *vittatus* (Bloch 1797) by its longer adipose dorsal and less number of

gill-rakers on the lower arm, 9-11 vs. 22-27 (Sharma and Dutt 1983).

The distribution of *bleekeri* is stated to be north India, with Mahanadi as its southern limit (Menon 1999; Jayaram 1999). However, Sharma and Dutt (op. cit.), reported it from peninsular India (Andhra Pradesh: Guntur). Recently, the species was reported from Neyyar river in Thiruvananthapuram district, Kerala by Raju *et al.* (1999), and Ponmudi, also in the same district (Cherian *et al.*, in press).

This report is based on collections made during paddy field ecosystem studies by the third author. Ten specimens ranging in length from 59 to 122 mm SL were collected during May-October 1999, from Singaperumal Koil paddy field in Chengleput district. This extends its distributional range to Tamil Nadu.

Jayaram (op. cit.) listed 19 species of *Mystus* from the Indian subcontinent, of which, with the recent inclusion of *microphthalmus* (Day) from Manipur, 14 species are represented in Indian territory. With the exception of this

species and *tengara* (Hamilton) [*tengara* has been synonymised with *vittatus* by Sharma and Dutt (op. cit.), but kept separate by Menon (op. cit.) and Jayaram (op. cit.)], all the remaining 12 species are known from peninsular India. Of these, four species namely *krishnensis* Ramakrishnaiah, *malabaricus* (Jerdon), *oculatus* (Valenciennes) and *punctatus* (Jerdon) are endemic to the Peninsula, mostly restricted to the hill streams of the Western Ghats. With the recent addition of *malabaricus* from the Indira Gandhi Wildlife Sanctuary, Anaimalai Hills, and the present addition of *bleekeri* from the fresh waters of Chennai, nine species are recorded from Tamil Nadu. It is worth mentioning here that *montanus* (Jerdon), recently reported from Javadhi Hills of Eastern Ghats (Rema Devi, 1992), is also found in the Tamil Nadu part of the Anaimalais, Western Ghats.

Three species of *Mystus*, namely *gulio*, *keletius* and *vittatus* (Deraniyagala 1952; Pethiyagoda 1991) are known from Sri Lanka. However, there seems to be some discrepancy in the record of *keletius* in Sri Lanka. Though the figure accompanying the description in Munro (op. cit.) is that given by Day (op. cit.), the description of adipose dorsal fin is a feature typical of *cavasius*. Besides, for several other characters given, the range covers both the species. However, the photograph captioned as *keletius* (p. 150), accompanying the description by Pethiyagoda (op. cit.) is that of *cavasius*. Also, as evidenced by the same photograph, *cavasius* is characterised by a long, adipose dorsal commencing immediately after the rayed dorsal, which is triangular, long and pointed, with a concave margin; smaller head, deeper body and absence of lateral stripes, whereas *keletius* has a smaller adipose dorsal, with a wide interspace between it and the rayed dorsal, which is low and with a somewhat rounded margin. Other known differences are: the number of branched rays

in the pectoral and anal fins, the maxillary barbel length and body proportions.

Day (op. cit.) originally reported *keletius* from Sri Lanka, which has been followed by subsequent workers. Pethiyagoda (op. cit.) in his description of the species (p. 149) lists *cavasius* as one of the names applied to it in Sri Lanka probably because of "confused identity". He also mentions that it attains a length of 18 cm, whereas it is known from literature that *keletius* is a smaller species, reaching only 12 cm in length. From the photographs of the Sri Lankan species it is certain that *cavasius* is present in Sri Lanka. It is also inferred that, including *cavasius*, four species are known from Sri Lanka (overlapping characters of both the species given in literature), and if *keletius* is a mistaken identity for *cavasius*, then three species *cavasius*, *gulio* and *vittatus* are present. Interestingly, these three species inhabiting swampy lowlands are very widely distributed in the Indo-Malayan region. None of the hill stream catfish in India are represented in Sri Lanka.

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K. REMA DEVI,
T.J. INDRA,
M.B. RAGHUNATHAN
Zoological Survey of India,
Southern Regional Station,
100 Santhome High Road,
Chennai 600 028,
Tamil Nadu, India.

REFERENCES

- CHERIAN, P.T., T.J. INDRA, K. REMA DEVI, M.B. RAGHUNATHAN & V.M. SATHISHKUMAR (in press): On the Ichthyofauna of Trivandrum Dist., Kerala, India. Zoological Survey of India. 20 pp.
- DAY, F. (1875-78): The fishes of India, being a natural history of the fishes known to inhabit the seas and freshwaters of India, Burma and Ceylon. William Dawson & Sons London, 778 pp., 195 pls.
- DERANIYAGALA, P.E.P. (1952): A coloured atlas of some vertebrates from Ceylon (1), fishes. National Mus. Ceylon Colombo. 149 pp., 34 pls.
- JAYARAM, K.C. (1999): The freshwater fishes of the Indian Region. Narendra Publishing House, Delhi. 551 pp., XVIII pls.
- MENON, A.G.K. (1999): Check List - Freshwater Fishes of India. *Zool. Surv. India, Occ. paper* No.175, 366 pp.
- MISRA, K.S. (1976): The Fauna of India and the Adjacent Countries. Pisces. (2nd edition). Vol. III, Teleostomi: Cypriniformes: Silurii. Zoological Survey of India. Calcutta. 367 pp., XV pls.
- PETHIYAGODA, R. (1991): Freshwater fishes of Sri Lanka. Wildlife Heritage Trust of Sri Lanka. 362 pp.
- RAJU THOMAS, K., C.R. BIJU & C.R. AJITH KUMAR (1999): *Mystus bleekeri* (Day) — An addition to the fish fauna of Kerala. *J. Bombay nat. Hist. Soc.* 93(3): 482-483.
- REMA DEVI, K. (1992): On a small collection of fish from Javadhi Hills, North Arcot District, Tamil Nadu. *Rec. zool. Surv. India* 91(3-4): 353-360.
- SHARMA, S.V. & S. DUTT (1983): Taxonomic studies on four species of the genus *Mystus* Scopoli, 1777 (Siluriformes: Bagridae) *Rec. zool. Surv. India* 81: 331-344.

Editor's Note: With reference to the note Thomas K.P. *et al.* (1999): Additions to the fish fauna of Pambar River, Kerala, Vol. 96(2) it has been pointed out by Dr. K. Rema Devi that there is a variation in the scalation of the middorsal streak in *Garra hughi*, which has been overlooked by the authors. Also, *Horallabiosa joshuai* as already been reported from Kerala (Rema Devi, K. & A.G.K. Menon (1994), *Rec. zool. Surv. India*, 94(2-4): 247-251).

26. RESOLUTION OF THE CONTROVERSIAL WESTERN LIMIT OF THE RANGE OF *DELIAS ACALIS* GODART (LEPIDOPTERA: PIERIDAE)

The western limit of the distribution of the Redbreast Jezebel *Delias acalis pyramus* Wallace has been the subject of some controversy. Evans (1932) gave a range of Shimla (Himachal Pradesh) to Burma (=Myanmar). Subsequent authors, including Wynter-Blyth (1957) and Lewis (1973) gave a range of Nepal to Assam, Burma, Malaysia and the Eastern Ghats of India for the species.

Wynter-Blyth (op. cit.) noted "Evans (op. cit.) gives Shimla as a locality for this butterfly, but this is not confirmed by THE FAUNA OF BRITISH INDIA nor has the author any record of its capture there. If his record is correct, it will presumably also be found in Garhwal and Kumaon."

Recently, I have seen this butterfly on five occasions in Kumaon. The first time was on November 9, 1997 in a garden in the H.M.T. Colony in Ranibagh near Haldwani at an

elevation of approximately 450 m. The butterfly was attracted to poinsettia blooms (*Euphorbia pulcherrima* Willd. ex Klotzsch) and settled for over a minute, allowing itself to be observed well. However, it was not possible to observe the *recto* surface and the diagnostic red basal area on the hindwing *recto*. It might therefore have been the Redbase Jezebel *Delias pasithoe* L., although this is unlikely.

The next sighting was in Jones Estate in the Bhimtal valley on April 21, 1998 at an elevation of 1,500 m. A rather worn specimen was attracted to blossoms of *Bauhinia vareigata* L. By a stroke of luck, it sailed across a terrace below me, so it was possible to clearly see the red basal area on the hindwing *recto*. It was certainly *Delias acalis*.

The third sighting was 10 km north of the town of Rudrapur in the Terai, at an elevation of